DOCUMENT RESUME

ED 215 192 CE 032 027

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TITLE Training Migrant and Seasonal Farmworkers for Energy-Related Occupations.
INSTITUTION Oak Ridge Associated Universities, Tenn. Manpower Development Div.
SPONS AGENCY Department of Energy, Washington, D.C.; Department of Labor, Washington, D.C.
REPORT NO ORAU-170
PUB DATE Jul 80
CONTRACT DE-AC05-760R00033
NOTE 51p.
AVAILABLE FROM National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Adults; Agricultural Laborers; Demonstration Programs; Employment Programs; *Energy; *Farm Labor; Federal Programs; Females; Job Skills; *Job Training; Migrant Adult Education; Migrant Programs; *Migrant Workers; Minority Groups; Outcomes of Education; *Program Effectiveness; Seasonal Laborers; Skilled Occupations; *Technical Occupations; Underemployment; Unemployment; Wages

ABSTRACT

The United States Departments of Energy (DOE) and Labor (DOL) have cosponsored a number of demonstration programs to train economically disadvantaged migrant and seasonal farmworkers for energy-related technical and skilled occupations. A descriptive study of the first DOE/DOL demonstration was made to determine the impact of training on participants' subsequent labor force activity and the effectiveness of the program in meeting the needs of this target group. Analysis of participants' employment and wage rates before and after training indicated favorable outcomes--both wages and the number employed increased significantly. Wages after training were approximately double those before training, with women, nonwhites, and high school graduates reporting the largest increases. The data on farmworkers, compared to those of clients enrolled in Comprehensive Employment and Training Act (CETA) programs, showed the farmworkers to have employment status gains similar to CETA clients enrolled in vocational training nationally, but lower than other CETA participants enrolled in energy-related programs. Farmworkers' wage gains were significantly greater than those reported by CETA groups. Apparent key factors contributing to the success of the program include the farmworkers' desire to leave agricultural labor, their willingness to relocate to accept employment, the existing network of employers developed by the training program, and the program's ability to provide needed supportive services. The findings of this study support other research which has demonstrated that skill training, in contrast to public jobs programs, can provide farmworkers with a more permanent solution to under- and unemployment. (Author/KC)

ED215192

ORAU–170

TRAINING MIGRANT AND SEASONAL FARMWORKERS FOR ENERGY-RELATED OCCUPATIONS

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ABSTRACT

The U.S. Department of Energy (DOE) and U.S. Department of Labor (DOL) have cosponsored a number of demonstration programs to train economically disadvantaged migrant and seasonal farmworkers for energy-related technical and skilled occupations. This descriptive study examines the first DOE/DOL demonstration to determine the impact of training on participants' subsequent labor force activity and the effectiveness of the program in meeting the needs of this target group.

Analysis of participants' employment and wage rates before and after training indicates favorable outcomes as wages and the number employed increased significantly. All selected subgroups experienced substantial employment status gains with women reporting the largest increases. Post-training wages of all subgroups were approximately double those before training with women, nonwhites, and high school graduates reporting the largest increases. Data on farmworkers were compared to those of other clients enrolled in the same program under the Comprehensive Employment and Training Act (CETA) and a national sample of CETA participants enrolled in vocational training programs. In general, the farmworkers reported employment status gains similar to the national CETA sample but lower than the other CETA participants enrolled in the same program. The farmworkers' wage gains were significantly greater than those reported by the two comparison groups.

Apparent key factors contributing to the success of the program include the farmworkers' desire to leave agricultural labor, their willingness to relocate to accept employment, the existing network of employers developed by the training program, and the program's ability to provide needed supportive services.

The findings of this study support other research which has demonstrated that skill training, in contrast to public jobs programs, can provide farmworkers with a more permanent solution to under- and unemployment. The author recommends that the use of skill training be increased in the mix of services designed to alleviate the labor market problems faced by farmworkers.

EXECUTIVE SUMMARY

I. INTRODUCTION

In 1977 the Office of Industrial Relations of the U.S. Department of Energy (DOE) and the Office of Farmworker Programs of the U.S. Department of Labor (DOL) began a number of demonstration programs designed to train migrant and seasonal farmworkers for energy-related technical and skilled occupations. This study examines the first DOE/DOL demonstration, which was conducted at the Training and Technology (TAT) program in Oak Ridge, Tennessee.

The major objectives of the study are twofold: first, to determine the impact of the program on participants' subsequent labor force activity, and second, to discover how effectively the TAT program, which has trained the unemployed and economically disadvantaged since 1966, meets the needs of a special group of trainees--migrant and seasonal farmworkers. To the extent that differences exist between the performance of farmworkers and other trainees at TAT, this study has attempted to answer the following questions: (1) Are there common characteristics among farmworkers that are related to their performance at TAT? (2) Are there changes in the TAT program that should be made to improve program effectiveness? Special consideration is given to problems related to farmworkers' adjustment from agricultural to industrial work.

This analysis focuses on relative gains or losses in employment and wage rates before and after training, and on program completion rates for the 106 farmworkers enrolling in TAT during fiscal year (FY) 1978. Quantitative data were collected from trainees and employers by project staff before, during, and after training. Program outcomes and performance in training data on the farmworker participants are compared with those of other trainees in the TAT program and a national sample of participants enrolled in basic education and vocational training programs funded through the Comprehensive Employment and Training Act (CETA).

Qualitative information was collected from program staff and participants to assess farmworkers' motivation, familiarity with and ability to adapt to an industrial setting, special needs, and specific problems

encountered in training. Analysis of staff and trainee data, collected in open-ended interviews, are used to supplement quantitative information.

II. KEY FINDINGS

Posttraining Labor Force Status

Measures of posttraining employment rates provide estimates of the impact of a program on participants' status in the labor market. The following data indicate favorable outcomes for the farmworkers receiving training at TAT:

- The number of farmworkers employed after training (71 percent) was almost double the number employed before training.
- Eighty-two percent of those completing the program were placed in jobs after training.
- Eighty-three percent of those placed entered jobs related to their training.
- All selected subgroups studied experienced significant employment status gains with women reporting the largest increases.

Examination of farmworkers' employment status gains (Table A), along with the two comparison groups selected for this study, indicates that all three groups significantly increased their participation in the labor force; however, the comparison group enrolled in TAT (hereafter referred to as "nonfarmworkers") reported the largest gains. Two comments are in order regarding interpretation of the data in Table A. First, it must be recognized that the CETA participants ended training and reentered the labor market in 1975 when the national economy was suffering from a recession. Second, while the farmworkers reported the largest numbers employed before training (38 percent) a sizable number of these persons (44 percent) were working only part-time when accepted into the program.

Most of the farmworkers have had to relocate in order to accept jobs obtained through the TAT program. A number of farmworker graduates, however, have been unwilling to relocate even when offered a job. If large numbers had been unwilling to do so, their employment and wage rates after training would have been substantially lower. This unwillingness to move appears to be a significant factor contributing to the farmworkers' lower posttraining employment rate.

Table A. Pre- and Posttraining Labor Force Status of Farmworkers and Nonfarmworkers Enrolled in TAT and a National Sample of CETA Participants

Employment Status	Farmworkers N = 106			Nonfarmworkers N = 402			CETA* N = 1400 (estimate)		
	Pre-training	Post-training	Percent Change	Pre-training	Post-training	Percent Change	Pre-training	Post training	Percent Change
Employed	38%	71%	+33	27%	83%	+56	21%	48%	+27
Unemployed	60%	29%	-31	73%	17%	-56	79%	52%	-27
Unknown	2%	___		___	___		___	___	
Total	100%	100%		100%	100%		100%	100%	

NOTE: Percent unemployed includes those not in the labor force.

*CETA data from *Continuous Longitudinal Manpower Survey: Follow-Up Report No. 1*, January-June 1975.

While reluctance to relocate is also common among the nonfarmworkers, the problem is less pronounced as over 90 percent reside within Tennessee where the TAT program has established a network of employers since the late 1960s. The program's placement network outside Tennessee is concentrated in large cities throughout the Southeast. Since 88 percent of the farmworkers previously resided in states other than Tennessee, job placements have generally not been near the graduates' home communities.

Posttraining Wages

An examination of pre- and posttraining wages of enrollees indicates that training led to higher wages for most participants, with farmworkers showing the greatest increases. These substantial gains in farmworkers' wages are shown in Table B and by the following facts:

- The median posttraining wage rate for farmworkers was $5.29 per hour, more than double the pretraining rate.
- Posttraining wages of all farmworker subgroups were approximately double those before training, with women, nonwhites, and high school graduates reporting the largest increases.
- Wage gains reported by farmworkers were significantly higher than those of the two comparison groups.

Two major reasons are offered to explain this large increase in wages. First, as participants' wages and job titles before training indicate, most of the farmworkers were trapped in marginal jobs in agriculture. While most trainees participating in CETA programs have experienced underemployment, this is particularly true among farmworkers whose average hourly wage reported at their last pretraining job (1977-1978) was $2.80. In comparison, the CETA sample reported an average wage of $2.81 at their last pretraining job, which was in 1974-1975. This wage rate equals $3.47 per hour in 1977 dollars. Second, the farmworkers were trained in technology-intensive skills and placed with companies that are responsive to regional wage rates for skilled and technician-level occupations.

Participant Profile

In general, farmworker participants were young, male, and severely disadvantaged economically. Over half were nonwhite and slightly more than half

Table B. Pre- and Posttraining Hourly Wage Rates of Farmworkers and Nonfarmworkers Enrolled in TAT and a National Sample of CETA Participants

	Farmworkers				Nonfarmworkers				CETA*	
	Avg.	Median	N	Missing Data	Avg.	Median	N	Missing Data	Avg.	N
Last pretraining job	$2.80	$2.61	84	17	$3.15	$3.02	85	7	$2.81	750 (est.)
Posttraining job	$5.41	$5.29	65	10	$5.44	$4.98	61	12	$3.06	670 (est.)
Difference	$2.61	$2.68			$2.29	$1.96			$0.25	
Percent increase	93%	103%			73%	65%			9%	

*CETA data from *Continuous Longitudinal Manpower Survey: Follow-Up Report No. 1*, January-June 1975.

of the group had completed high school. With the exception of age, they more closely resemble the CETA comparison group than they resemble the nonfarmworkers.

The average age of farmworkers at entry was 21.2 years. While ages ranged from 17 to 36, over half (51 percent) were under 20. Although comparable numbers of white and black farmworkers participated in training, 41 percent and 55 percent respectively, there were few Hispanics as trainees were recruited from southeastern states (excluding Florida), which have large black populations but relatively few Hispanics. Most participants were male, but even though the industrial skills taught at TAT (e.g., welding and machining) have traditionally been considered male occupations, a sizable number (23 percent) of women participated. The extent to which farmworkers were disadvantaged is reflected by the fact that over 90 percent reported an annual family income of less than $5,000 the year before training.

Performance in Training

While participants who do not complete training programs still experience some benefits, successful completion of a training program is a measure of achievement that generally indicates a certain level of proficiency. It is also important in the case of TAT since the job placement service is provided only to program completers. The following data suggest that the farmworkers were able to acquire the technical skills and adaptive behaviors appropriate to industrial occupations and specified by TAT curricula:

- Seventy-three percent of the farmworkers completed training compared to 84 percent of the nonfarmworkers.
- Overall attendance rates and grade point averages were identical for the two groups.
- TAT staff ratings of trainee motivation showed no difference between the two groups.
- Rates of program completion for farmworkers by race and sex subgroups were almost identical.

Two characteristics were shown to be related to program completion rates for the farmworker trainees--age and educational status. Younger farmworkers, those under 20, experienced a dropout rate of 36 percent

compared to 22 percent for those age 20 and above. This relationship was statistically significant ($p<0.1$) with a correlation of 0 15. Farmworkers who had not completed high school dropped out of TAT at a rate of 33 percent compared to 20 percent for high school graduates. The correlation between educational status and program completion was 0.21 and was statistically significant ($p<0.05$).

The higher noncompletion rate among younger farmworkers may be a result of social adjustment problems experienced in living away from home for the first time. The level of dependence on family is demonstrated in that over 40 percent of the farmworker trainees listed parents as their major source of financial support prior to entry. The research on employment and training programs for rural residents and numerous interviews with farmworkers leaving the program before completion overwhelmingly identify social adjustment to urban life as a significant problem experienced by rural youth. The tendency of younger farmworkers to drop out at a higher rate may partially explain the farmworkers' lower overall graduation rate (73 percent compared to 84 percent for nonfarmworkers) since there was no relationship between age and program completion for the nonfarmworkers.

Statistically significant relationship between educational status and program completion were found among both the farmworkers and nonfarmworkers. Correlations were 0.21 and 0.22 respectively. The farmworker group, however, had a significantly larger number of individuals who were not high school graduates, 44 percent compared to 25 percent. This educational difference partially accounts for the differential rates of program completion shown by the two groups.

III. CONCLUSIONS AND RECOMMENDATIONS

The findings of this study indicate that migrant and seasonal farmworkers who have graduated from the TAT program have acquired the work-related skills and adaptive behaviors needed in the skilled and technical occupations for which they were trained. This conclusion is based on their gains in labor force status and wage rates after training, and the program completion rates discussed above. Apparent key factors contributing to the success of the program include the farmworkers' desire to leave agricultural labor, their willingness to relocate to accept employment, the existing

network of employers developed by the TAT program, and the program's ability to provide needed supportive services.

The farmworkers experienced a slightly lower posttraining employment rate (71 percent compared to 83 percent) than the nonfarmworkers. A possible factor related to the differential placement rates is the reluctance of some farmworkers to relocate and the location of known job opportunities. In order to maximize the job placement rate for future farmworker trainees, the TAT program should expand its existing network of employers in the farmworkers' home states. This would provide additional employment opportunities for individuals unwilling or unable to move far from their home communities. Increased job satisfaction and longevity with the initial employer would probably be auxiliary benefits of this expansion.

Program completion rates of selected subgroups show that younger farmworkers and those who have not completed high school are less likely to complete training. The younger participants, many of whom experienced adjustment problems, could receive special counseling and seminars designed to develop independent living skills. Previous studies of rural employment and training programs have demonstrated the need for this service especially among younger participants. Those who have not completed high school could receive additional tutoring to improve their academic skills. Instruction could be given before participants begin skill training as well as during the training. Since the relationship between these characteristics and program completion status is not extremely strong, additional research would be helpful.

Finally, the findings of this study support other research which has demonstrated that skill training, in contrast to income maintenance strategies, can provide farmworkers with a more permanent solution to under- and unemployment. While cost-benefit studies are needed to determine the relative value of different employment and training strategies for the rural disadvantaged, this study indicates that using skill training in the mix of services designed to alleviate the labor market problems faced by farmworkers should be increased.

INTRODUCTION

The plight of agricultural workers in an increasingly urbanized society is often one of extreme hardship. Farm wage workers, dependent on agriculture as the major source of income, suffer chronic seasonal unemployment and underemployment. The increased mechanization of agricultural labor, which has greatly raised productivity, has steadily reduced demand for agricultural workers. Thus, diminishing employment opportunities and chronic poverty characterize the lives of many agricultural workers today.

In the past, most government initiatives directed at the employment problems of farmworkers have provided some income maintenance (particularly during periods of seasonal unemployment) and other supportive services. Such assistance programs were designed to provide a temporary solution or holding action, but had little impact on the labor market conditions or on the low skill levels of most farmworkers, which kept them in the agricultural labor market.[1]

In the late 1960s and 1970s, however, the federal government began to experiment with strategies to provide permanent solutions to employment problems of agricultural workers. One of the more promising efforts has been a number of demonstration skill training programs for migrant and seasonal farmworkers, cosponsored by the U.S. Department of Energy (DOE) and Department of Labor (DOL) and designed to provide alternatives to agricultural labor. Using DOL funds appropriated through the Economic Stimulus Program, the training has generally been conducted by DOE contractors. Since 1977 there have been five DOE/DOL programs designed to train farmworkers for skilled and technical occupations in energy-related industries (see Table 1).

An examination of these pilot programs will produce findings relevant to future policy and programming decisions. Questions of interest include the degree to which graduates are placed in energy-related occupations, relative wage gains after training, how farmworkers perform in training, and special problems they experience in adapting to a nonagricultural environment. An analysis of program outcomes will supply information needed to determine the feasibility of training farmworkers for technician-level jobs. Documenting these demonstration programs also contributes to an overall assessment of the degree to which they advance DOE and DOL goals.

Table 1. DOE/DOL Skill Training Programs for Migrant and Seasonal Farmworkers

Program Operators	Training Areas	Number of Trainees	Description of Training
Oak Ridge Associated Universities and Union Carbide Corporation, Nuclear Division Oak Ridge, Tennessee	Welding		Plate and pipe welding using shielded metal arc process.
	Machining		Instruction in lathe and milling machine operation.
	Physical testing	260	Destructive and nondestructive testing.
	Mechanical operations		Fabrication and installation of common piping materials.
	Drafting		Tool and machine design, production and layout drafting.
Memphis State University Center for Nuclear Studies Memphis, Tennessee	Nuclear reactor operator Radiation technician	81	Instruction and operational experience in the practical aspects of nuclear reactor operation. Instruction in the principles and practices of radiation protection.
Reynolds Electrical & Engineering Company, Inc. Las Vegas, Nevada	Radiological safety technician	55	Radiation safety and monitoring techniques.
Stanford Linear Accelerator Center Stanford, California	Electronic assemblers	36	Assembly and fabrication of electronic equipment.
Illinois Basin Coal Mining Manpower Council, Inc. and Wabash Valley College Mt. Carmel, Illinois	Underground mining	152	Methods and safety procedures of modern shaft mining.

This descriptive study examines the first and largest DOE/DOL skill training program for migrant and seasonal farmworkers, which began in 1977, at the Training and Technology (TAT) program in Oak Ridge, Tennessee. The establishment of the Training and Technology pilot program for farmworkers led to DOE's decision to cooperate with DOL in establishing other skill training programs for farmworkers.

BACKGROUND

SKILL TRAINING AND PUBLIC JOBS PROGRAMS

In two decades of federal employment and training policy directed at human resource development, primary objectives have been to (1) increase the employability of the economically disadvantaged and (2) eliminate poverty through the movement of the unemployed and underemployed into the primary labor market.[2] Many policy analysts and others involved in public employment and training programs for the unemployed and economically disadvantaged agree that these goals are best served by providing a mix of services (skill training, public jobs, employability development, and job development) designed to meet individual needs and changing labor market conditions. There is substantial disagreement, however, regarding the appropriate weight of different program types within the service mix.

The debate concerning the distribution of funds among major programs has focused on the relative benefits and effectiveness of skill training programs compared to public jobs programs. In a comprehensive study of the evaluative literature and outcomes data of employment and training programs conducted during the 1960s, Perry et al. concluded that skill training programs (on-the-job and institutional training) had the most favorable impact on participant employment and earnings with public jobs programs having the least impact of all major program types.[3] The impact of skill training programs on participants was also found to generate favorable cost-benefit ratios while enrollment in public jobs programs had either minor or no impact on earnings.[4] Analysis of placement rates of Public Service Employment (PSE) participants under the Comprehensive Employment and Training Act (CETA) indicates that only about 30 percent of all terminees enter unsubsidized employment.[5]

These findings are cause for concern in light of the significant increase in expenditures for public jobs programs (largely a federal response to rising unemployment) and the relative decrease in spending for skill training during the latter half of the 1970s. This shift from programs emphasizing human capital development to those providing temporary employment is reflected in DOL financial reports. The proportion of Title I* funds spent on training

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*Now Title II under the 1978 CETA reauthorization.

and other job preparation services declined from 60 percent in 1974 to 42 percent in 1976.[6] Resources allotted to PSE programs rose from 34 percent of all CETA appropriations in 1975 to 58 percent in 1978.[7]

Emphasis on public jobs programs is even more pronounced in rural areas because of the following conditions: (1) absence of training facilities, (2) limited employment opportunities for skilled workers, (3) lack of transportation, and (4) limited infrastructure needed for administering income maintenance programs. Nevertheless, administrators of employment and training programs in rural areas surveyed in 1978 concluded that skill training, combined with economic development, is the most effective strategy for placing the disadvantaged in permanent unsubsidized employment.[8] The only known longitudinal study of the effects of employment and training programs on migrant and seasonal farmworkers also found that skill training, compared to other services, had the most favorable impact on employment and earnings.[9] A major recommendation of this study is that increased emphasis should be placed on occupational training programs.[10] The current limited use of skill training in rural areas, combined with the conclusions discussed above, suggests that efforts should be made to increase the availability of skill training opportunities for the rural unemployed and disadvantaged.

While the trend away from occupational skill training programs has been reduced somewhat in the last few years, it is clear that reduction of unemployment through creation of public jobs has become a major objective of employment and training policy. There is some concern that this shift toward PSE and other income maintenance strategies undermines the original objectives of increasing employment and eliminating poverty.

Few would argue that public jobs programs do not have a significant function in the overall program mix. Besides reducing unemployment and providing income maintenance, these programs raise the level of public services provided by local government and private nonprofit organizations by supplying additional employees. Public jobs programs are appropriate for many individuals, especially those who are not interested in or cannot benefit from other services, and should be emphasized in areas with loose labor markets. The major drawback of such programs, however, is that they generally do not allow participants to develop the skills needed to enter unsubsidized employment. Institutional and on-the-job training, which have

been shown to provide participants with the opportunity for economic self-sufficiency, should be the preferred program type when conditions permit.

MIGRANT AND SEASONAL FARMWORKERS

Farmworkers are defined by the Department of Labor as those individuals who earn wages from agricultural labor. There are approximately 2.7 million farm wage workers in the United States. About one-third of these persons depend on agriculture as their major source of income. Recent federal legislation authorizes manpower programs targeted to this segment of the farmworker population, which consists of 880,000 seasonally employed and 120,000 migratory farmworkers.[11] This group is referred to as "migrant and seasonal farmworkers" or simply "farmworkers" in this report.

Racially, Hispanic and black farmworkers are represented in greater numbers than is the case in the general population. Of the one million farm wage workers dependent on agriculture, 62 percent are white, 19 percent Hispanic, and 19 percent black or other groups.

Farmworkers suffer from chronic seasonal under- and unemployment. Many are poor, illiterate, and unhealthy; many inhabit substandard housing. Some of the social and economic problems experienced by farmworkers are illustrated by the following facts:[12]

- Annual income for 60 percent of families is less than $3,000.
- Public assistance is received by fewer than one family in ten.
- Literacy among adults is 50 percent.
- Average years of education are 8.5.
- Incidence of substandard housing is 40 percent.
- Life expectancy is 20 years less than average.
- Infant and maternal mortality is two and one-half times the national average.

The number of persons employed in agricultural labor has been decreasing since World War II. Labor market estimates of future demand for farmworkers indicate a continued decline in employment opportunities.[13] The displacement of agricultural workers has created a rural work force problem that affects the national economy.

In recognition of this problem and the fact that traditional social service delivery mechanisms have failed to serve this population adequately in

the past, Congress passed legislation in 1973 authorizing special programs to deal with some of the economic and social problems faced by farmworkers. This legislative mandate is found in Title III, Section 303, of the Comprehensive Employment and Training Act. Section 303 of CETA establishes two broad objectives for programs serving farmworkers: (1) providing alternatives to agricultural labor and (2) improving the life-style of farmworkers and their families who remain in the agricultural labor market.

Income and occupational criteria determine client eligibility requirements for participation in programs funded under Section 303. Farmworkers eligible to participate are those whose incomes are below the poverty level or obtained from cash welfare payments, and who also earn more than 50 percent of their income from farmwork.

CONTRACTUAL ARRANGEMENTS

On September 30, 1977, the Department of Energy received $609,800 through an interagency agreement from the Department of Labor, Office of Farmworker Programs (OFP), to provide skill training and comprehensive support services to 96 migrant and seasonal farmworkers at the Training and Technology program. Since TAT is operated by DOE prime contractors, Oak Ridge Associated Universities and Union Carbide Corporation, Nuclear Division, programs conducted for other federal agencies require an interagency agreement. The initial agreement ran from September 30, 1977, to March 29, 1979. Subsequent agreements have extended the program through September 30, 1980.[14]

The geographic area served encompasses the eight southeastern states of the Tennessee Valley: Alabama, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia.

Applicants have to meet CETA Title III, Section 303 eligibility criteria, as defined above, and TAT entrance requirements. TAT requirements are that participants (1) possess at least a sixth grade functional level in reading and math, (2) be 18 years old by graduation, and (3) are motivated to seek employment.

Farmworkers were recruited, screened, and referred by OFP's grantees serving the eight Tennessee Valley states. Final selection of applicants was made by TAT staff on the basis of recommendations from grantee staff, testing, and a personal interview.

Farmworkers selected to participate were trained in one of the following skill areas: welding, machining, mechanical operations, physical testing, and drafting. Training was conducted for six months in all skill areas except drafting, which lasted for nine months.

METHODOLOGY

A principal question addressed in this study concerns the extent to which under- and unemployed farmworkers can be trained for technical jobs. Stated as a hypothesis, farmworkers can be trained and placed in technical and skilled occupations at rates comparable to other CETA clients. This hypothesis has been tested by measuring relative gains or losses in employment and wage rates, and by rates of training completion of farmworkers and selected subgroups, e.g., blacks and women.

This analysis was also undertaken to determine how effectively TAT meets the needs of a special group of trainees--farmworkers. To the extent that there are differences in the way these trainees perform at TAT this study has attempted to answer the following questions: (1) Are there common characteristics among farmworkers that are related to their performance at TAT? (2) Are there changes in the TAT program that should be made to improve program effectiveness?

Quantitative and qualitative information are used in the description and analysis of TAT's migrant and seasonal farmworker program. Quantitative information consists of data collected from trainees and employers by project staff before, during, and after training. Data are used to describe the characteristics of persons trained, performance in training, and program outcomes. Distributions among quantified variables are presented with simple descriptive statistics such as percentages, means, medians, and modes. Correlation coefficients and discriminant analysis were computed to determine the relationship between selected characteristics and program outcomes.

Qualitative information comes from observations by program staff, trainees, and the author. Administrative, instructional, and supportive service staff were interviewed to record their observations of the farmworkers participating in training. Program staff were specifically asked about farmworkers' motivation, familiarity with and ability to adapt to an industrial setting, special needs, and particular problems encountered in training. An open-ended interview was used to collect qualitative information from TAT staff. Analysis of staff responses and trainee data are used to supplement quantitative information.

DESCRIPTION AND ANALYSIS

Data on posttraining labor force activity, performance in training, and trainee characteristics are presented in the following tables. Data have been collected on the 106 farmworkers enrolling in TAT during fiscal year (FY) 1978. A total of 143 farmworkers enrolled under the original contract. The remaining 37 farmworkers, who enrolled in FY 1979, are not included in this report.

Trainees who enrolled in TAT the previous fiscal year are used as a comparison group. This group, which consists of the 402 persons terminating in FY 1977, was selected for comparison because they participated in the same program as the farmworkers and have similar characteristics.[15] All of these trainees are nonfarmworkers. Data on the characteristics of nonfarmworkers were not readily available for certain types of cross-tabular analysis. In these instances, information presented comes from a sample of 94 trainees randomly selected from the 402 enrollees.

A national sample of CETA participants enrolled in basic education and vocational training programs in 1975 is also used as a comparison group. These data were collected as part of the Continuous Longitudinal Manpower Survey conducted for the Office of Program Evaluation, Employment and Training Administration, U.S. Department of Labor. This group is especially useful for comparison as it provides a national picture of CETA clients participating in training programs and their subsequent experience in the labor market. This group is referred to as "CETA participants" or the "CETA sample" in this report.

POSTTRAINING LABOR FORCE STATUS

The most widely accepted measures of success in a training program are the job placement rate (which is discussed below) and starting wages after training. These measures, when compared with pretraining earnings and employment status, indicate the short-term impact of training on the participants' financial and employment status.

A majority of all three groups were unemployed prior to entering training programs with the farmworkers having the greatest number, 38 percent, employed at this time (see Table 2). It should be noted that 44 percent of

Table 2. Pre- and Posttraining Labor Force Status of Farmworkers and Nonfarmworkers Enrolled in TAT and a National Sample of CETA Participants

Employment Status	Farmworkers N = 106			Nonfarmworkers N = 402			CETA* N = 1400 (estimate)		
	Pre-training	Post-training	Percent Change	Pre-training	Post-training	Percent Change	Pre-training	Post-training	Percent Change
Employed	38%	71%	+33	27%	83%	+56	21%	48%	+27
Unemployed	60%	29%	-31	73%	17%	-56	79%	52%	-27
Unknown	2%								
Total	100%	100%		100%	100%		100%	100%	

NOTE: Percent unemployed includes those not in the labor force.

*CETA data from *Continuous Longitudinal Manpower Survey: Follow-Up Report No. 1*, January-June 1975.

the farmworkers listed as employed were working only part-time when accepted into the program.

Posttraining information on CETA participants includes individuals who did not complete the programs as well as the graduates. This presents a problem in making comparisons between groups because posttraining labor force data are not currently available on nonfarmworkers and farmworkers who did not complete the program. The noncompleters constitute 27 percent of all farmworker enrollees and 16 percent of the nonfarmworkers. In order to include noncompleters in posttraining comparisons, the following estimates of their subsequent employment were made: individuals who were employed when accepted into the program are classified as employed after training; posttraining wages are estimated to be the same as the last reported pretraining wage. While actual posttraining data are preferable, it is reasonable to assume that those employed shortly before entering training will find jobs within three months after termination since the pretraining employment status of the noncompleters in both groups is almost identical to that of the graduates. Estimating posttraining wages to be the same as those before training is probably a conservative assumption since maturation, benefits derived from training, and heightened aspirations could be expected to push earnings upward.

As shown in Table 2, all three groups made significant gains in labor force participation with the nonfarmworkers showing the largest increase in percent employed after training. Employment of farmworkers and participants in the CETA sample increased by similar percentages. Both the farmworker and nonfarmworker trainees reported high levels of employment after termination, 71 and 83 percent respectively, while approximately half of the CETA trainees found employment shortly after leaving training. It must be recognized that the CETA participants left training and reentered the labor market in 1975, a year in which the national economy was suffering from a recession.

Table 3 illustrates the distribution of selected subgroups of farmworkers and nonfarmworkers according to their pre- and posttraining status in the labor force.

Among farmworkers men were more likely than women to be employed after training, 74 percent compared to 58 percent, but the women made significantly greater gains in labor force participation as only 9 percent were employed

Table 3. Pre- and Posttraining Labor Force Status of Farmworkers and Nonfarmworkers Enrolled in TAT by Selected Characteristics

Characteristic	Farmworkers N = 106					Nonfarmworkers N = 94				
	Pretraining		Posttraining		Change in Percent Employed	Pretraining		Posttraining		Change in Percent Employed
	Percent Employed	Percent Unemployed	Percent Employed	Percent Unemployed		Percent Employed	Percent Unemployed	Percent Employed	Percent Unemployed	
Sex										
Men	52	48	74	26	+22	30	70	77	23	+47
Women	9	91	58	42	+49	20	80	80	20	+60
Race										
White	43	57	79	21	+36	32	68	80	20	+48
Nonwhite	37	63	65	35	+28	17	83	67	33	+50
Age										
17	33	67	100	--	+67	50	50	100	--	+50
18-21	43	57	74	26	+31	38	62	88	12	+50
22-29	35	65	68	32	+33	20	80	63	37	+43
30 and over	33	67	75	25	+42	15	85	77	23	+62
Education										
High School Graduate	40	60	74	26	+34	28	72	80	20	+52
Nonhigh School Graduate	38	62	67	33	+29	29	71	71	29	+42
Total (overall)	38*	60	71	29	+33	29	71	78	22	+49

*2 percent unknown

NOTE: The percent unemployed includes those not in the labor force.

before entering training. This is consistent with the findings of several longitudinal studies, which have concluded that women participants experience larger gains in employment status than do other subgroups.[16] By contrast, men and women nonfarmworkers experienced similar pre- and posttraining employment rates.

After training, white farmworkers fared better in the labor market than did nonwhite farmworkers; 79 percent and 65 percent found employment respectively. Labor force gains were similar, however, as fewer nonwhites had been employed before training. A similar pattern was found among white and nonwhite nonfarmworkers. Hispanics and Indians are grouped here with blacks in the category nonwhite as they constitute less than 5 percent of each training group.

The youngest farmworkers, those 17 years old, showed the greatest pretraining/posttraining increase in employment. This is probably due to the fact that persons in this age group are generally new entries into the labor market. Labor force gains among nonfarmworkers were similar with the exception of the oldest participants, those 30 and over, who reported the largest increase.

The farmworkers who had completed high school before entering training were somewhat more successful in the job market after training than those without high school diplomas. The same relationship was found to exist among the nonfarmworker trainees.

A discriminant analysis was performed to identify the power of selected pretraining characteristics to predict the employment status of farmworkers after training. The following characteristics were entered into the model: age, race, sex, education, marital status, employment status, and the latest reported earnings. The results indicate that nonwhites were the least likely subgroup to be employed after training, though the correlation coefficient between race and employment status suggests that the relationship is not a strong one.

Since the major purpose of this demonstration project was to train and place farmworkers in energy-related technician-level occupations, it is useful to look at the types of jobs obtained by program graduates. The graduates were placed (through assistance from program personnel) in entry-level jobs with over 25 employers located primarily throughout the southeastern United

States. Eighty-three percent of those placed entered training-related jobs. Typical employers included firms in the nuclear and petroleum industries, machine shops, shipyards, and companies engaged in construction of power plants. Most of these employers provide liberal fringe benefits and offer opportunity for advancement as new employees become more skilled through experience gained on the job. These jobs contrast markedly with the low-paying, marginal jobs in agriculture that characterized the farmworkers' pretraining employment histories.

The posttraining employment levels of graduates are illustrated in Table 4. As seen here, a very high percentage of both groups were placed after completing training, with 94 percent of the nonfarmworkers employed and a slightly lower number (82 percent) of the farmworkers.

Table 4. Posttraining Labor Force Status of Farmworker and Nonfarmworker TAT Graduates

Employment Status	Farmworkers N = 77	Nonfarmworkers N = 338
Employed	82%	94%
Unemployed	18%	6%
Total	100%	100%

NOTE: The percent unemployed includes those not in the labor force.

Most of the farmworkers have had to relocate in order to accept jobs identified by program personnel. Some farmworker graduates, however, have been unwilling to relocate even when offered a job. If large numbers had been unwilling to do so, posttraining employment and wage rates would have been substantially lower. This reluctance to move appears to be a significant factor contributing to the farmworkers' lower posttraining employment rate.

The 14 farmworker graduates not placed were referred to from one to four job interviews. Eight individuals either declined to interview or were offered jobs after an interview and refused, five attended interviews and were not offered jobs, and one has not been available. The most common reason given by graduates for declining an interview or job offer has been the desire to find employment closer to home. While this reason is also commonly cited by nonfarmworkers, the problem is less pronounced because over 90 percent reside within Tennessee where the program has established a network of employers since the late 1960s. The program's placement network outside Tennessee is concentrated in large cities throughout the Southeast. Since 88 percent of the farmworkers previously resided in states other than Tennessee, job placements have generally not been near the graduates' home communities.

Almost any group of trainees will include people who are not willing or able to relocate to accept employment. Some may even opt for unemployment or a low-paying job rather than move. In order to maximize placement of future farmworker trainees, the TAT program should expand its network of employers in the farmworkers' home states. Increased job satisfaction and longevity with the initial employer would probably be additional benefits of this expansion.

POSTTRAINING WAGES

Comparing the pre- and posttraining wages of enrollees provides an estimate of the financial impact of training on the participants' labor force activity. Table 5 illustrates the effect of training, showing that the median posttraining wage rate for farmworkers was $5.29 per hour, more than double the pretraining rate. Lacking a randomly selected control group, it is not possible to determine how much of this jump in rate is due to training and how much to other factors such as maturation. The increase in hourly wages is so significant, however, that it is reasonable to assume that most of the increase is attributable to the skills and knowledge developed in training, which opened new labor markets to the graduates.

Two major reasons are offered to explain this large increase in wages. First, as participants' wages and job titles before training indicate, most of the farmworkers were trapped in marginal jobs in agriculture. While most

trainees participating in CETA programs have experienced underemployment, this is particularly true among farmworkers, whose average hourly wage reported at their last pretraining job (in 1977-1978) was $2.80. In comparison, the CETA sample reported an average wage of $2.81 at their last pretraining job, which was in 1974-1975. This wage rate equals $3.47 per hour in 1977 dollars. Second, the farmworkers were trained in technology-intensive skills and placed with companies that are responsive to regional wage rates in skilled and technician-level occupations.

Table 5. Pre- and Posttraining Hourly Wage Rates of Farmworkers and Nonfarmworkers Enrolled in TAT and a National Sample of CETA Participants

	Farmworkers				Nonfarmworkers				CETA*	
	Avg.	Median	N	Missing Data	Avg.	Median	N	Missing Data	Avg.	N
Last pretraining job	$2.80	$2.61	84	17	$3.15	$3.02	85	7	$2.81	750 (est.)
Posttraining job	$5.41	$5.29	65	10	$5.44	$4.98	61	12	$3.06	670 (est.)
Difference	$2.61	$2.68			$2.29	$1.96			$0.25	
Percent increase	93%	103%			73%	65%			9%	

*CETA data from *Continuous Longitudinal Manpower Survey: Follow-Up Report No. 1*, January-June 1975.

The pre- and posttraining hourly wages of farmworkers appear in Table 6 according to selected subgroups. The wages of all groups after training were approximately double those before training, with women, nonwhites, and high school graduates showing the largest increases. No statistically significant relationships were found to exist between wage gains and the pretraining characteristics of age, race, sex, education, marital status, employment status, and latest reported earnings.

Table 6. Pre- and Posttraining Hourly Wage Rates of Farmworkers Enrolled in TAT by Selected Characteristics

Characteristic	Last Pretraining Job Median	N	Posttraining Job Median	N	Difference	Increase Percent
Sex						
Men	$2.63	67	$5.17	53	$2.54	97
Women	2.52	17	5.94	12	3.42	136
Race						
White	2.68	35	5.26	29	2.58	96
Nonwhite	2.57	49	5.31	36	2.74	107
Age						
17	2.50	4	7.00	3	4.50	180
18-21	2.55	44	4.90	36	2.35	92
22-29	2.69	32	5.41	23	2.72	101
30 and over	2.63	4	7.00	3	4.37	166
Education						
High school graduate	2.53	45	5.27	35	2.74	108
Nonhigh school graduate	2.70	37	5.32	29	2.62	97
Total	2.61	84	5.29	65	2.68	103

PARTICIPANT PROFILE

Demographic characteristics of farmworkers and the two comparison groups appear in Table 7. This table illustrates differences between farmworkers, nonfarmworkers, and other CETA enrollees according to how their characteristics are distributed on selected variables.

The average age of farmworkers at entry was 21.2 years. While ages ranged from 17 to 36, over half the farmworkers (51 percent) were under 20 at entry. As a group the nonfarmworkers were slightly older, with an average age of 22.7, and the CETA enrollees were significantly older, average age 26.3. The largest percentage of the farmworkers and nonfarmworkers fell in the 18-to-21-year-old grouping, compared to the CETA enrollees, who reported the greatest number in the 22-to-29-year-old category.

Table 7. Selected Characteristics of Farmworkers and Nonfarmworkers Enrolled in TAT and a National Sample of CETA Participants

Characteristic	Farmworkers N = 106	Nonfarmworkers N = 402	CETA N = 1400 (est.)
Age*			
Average age at entry	21.2	22.7	26.3 (est.)
Under 18	6%	4%	2%
18-21	55%	45%	31%
22-29	35%	37%	43%
30 and over	4%	14%	24%
Race			
White	41%	85.8%	44%
Black	55%	13.7%	38%
Hispanic	2%	.25%	12%
Other	2%	.25%	6%
Sex			
Men	77%	91%	48%
Women	23%	9%	52%
Educational status at entry			
High school graduate	56%	75%	60%
Nonhigh school graduate	44%	25%	40%

*Nonfarmworker data from sample of FY 77 enrollees, N = 94.

Comparable numbers of white and nonwhite farmworkers participated in training, as was the case for the CETA enrollees. Differences in the distribution of farmworker and CETA nonwhite participants among various minority groups reflect regional variance in the nonwhite population. The farmworkers came from southeastern states (excluding Florida), which have large numbers of blacks and very few Hispanics.

The nonfarmworkers, 90 percent of whom list Tennessee as their state of permanent residence, are predominantly white (85.8 percent). A majority (62 percent) of the Title I CETA participants in Tennessee for FY 78 are also white, and 37 percent are black.[17] Statistical reports on the TAT program

indicate that the number of black participants enrolling in FY 77 is disproportionate to past experience. From the program's inception in 1966 through 1977, black trainees have averaged 29 percent of the total enrollment.[18]

The industrial skills taught at TAT--machining, welding, pipefitting, physical testing, and drafting--have been traditionally labeled as male occupations. Understandably, the number of women attending TAT has not been large proportionately although it has increased slightly in recent years. In comparison, a sizable number of the farmworker trainees, 23 percent, are women. They have trained in all of the skill areas.

There is a significant difference between farmworkers and nonfarmworkers in the level of education received prior to training. Seventy-five percent of the nonfarmworkers attending TAT are high school graduates, while only 56 percent of the farmworkers have high school diplomas. A similar number of CETA participants, 60 percent, have completed high school. Differences in educational attainment also exist among high school dropouts. Of the farmworkers who have not completed high school, 25 percent received a General Educational Development (GED) certificate prior to entry. Fifty-seven percent of the nonfarmworkers who did not finish high school obtained a GED certificate before they entered TAT.

It may be concluded that the farmworker trainees, in comparison with their nonfarmworkers counterparts, generally have more limited educational backgrounds. This conclusion is supported by their relative academic skill levels as measured by a standardized achievement test.[19] The average math and reading grade level scores of farmworkers on this test was 0.5 year lower than those of the sample randomly selected from the nonfarmworker group.* The difference in educational level exists among the trainees' parents as well. While only 18 percent of the farmworkers' parents had completed high school, over 45 percent* of the nonfarmworkers' parents had high school diplomas.

Another noteworthy difference between the farmworker and nonfarmworker groups is the size of family they were raised in. The farmworkers, in general, came from fairly large families. Over 26 percent of the farmworkers

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*Data from sample of FY 77 enrollees, N = 94.

had eight or more siblings. The mean number of siblings was five. Only six percent of the nonfarmworkers had this many siblings, with the mean being three. While most of the nonfarmworkers (68 percent) had three or fewer brothers and sisters, only one-third of the farmworkers were from families this small.

The extent to which the farmworkers are disadvantaged is illustrated by the following statistics: over 90 percent reported an annual family income of less than $5,000 in 1977, the year before training; and 100 percent were classified as economically disadvantaged. In comparison, 61 percent of the CETA sample was economically disadvantaged and 42 percent reported an annual family income of less than $5,000 (in 1977 dollars) the year before training.

In summary, the farmworker trainees are like other CETA participants in racial distribution and level of education. Major differences are that the farmworkers are more severely disadvantaged economically, are generally younger, and include fewer women. In comparison with the nonfarmworker group, the farmworkers have a lower level of educational attainment, a greater percentage of minorities and women, and are slightly more youthful.

PERFORMANCE IN TRAINING

The 106 farmworkers attending TAT during FY 78 entered in three enrollment cycles, beginning in January, April, and July. Seventy-three percent of the farmworkers successfully completed training. In comparison, 84 percent of the nonfarmworkers graduated from the program. The completion rate, along with posttraining employment and wage gains discussed earlier, indicates that the program was successful in training migrant and seasonal farmworkers for energy-related technical and skilled occupations. A description of differential rates of performance among farmworker subgroups appears below. This is followed by an examination of possible reasons for the farmworkers' slightly lower overall graduation rate in comparison with the nonfarmworker group.

Performance in training of the national sample of CETA participants is not discussed in this section as data presented in the Continuous Longitudinal Manpower Survey do not differentiate between completers and noncompleters.

Other measures of performance, besides completion rate, are grades received and attendance. There was virtually no difference between the attendance rates and overall grade point averages of the two groups.

Pretraining characteristics of farmworkers, according to termination status, are listed in Table 8. As the table illustrates, there was little difference in the completion rate of farmworkers according to race and sex. Given the fact that the completion rate for women enrolled in TAT has generally been lower than that for men, it is somewhat surprising that in training for these traditionally male occupations, women trainees graduated as frequently as men.

Table 8. Pretraining Characteristics of Farmworkers Enrolled in TAT by Termination Status
N = 106

Characteristic	Graduates	Nongraduates
Age (average)	21.4	20.9
Race		
White	72%	28%
Nonwhite	74%	26%
Sex		
Men	72%	28%
Women	76%	24%
Educational status at entry		
High school graduate	80%	20%
Nonhigh school graduate	67%	33%
Total (overall)	73%	27%

The data in Table 8 suggest that educational status is associated with success in training. Eighty percent of the farmworkers who are high school graduates completed training compared to 67 percent of those without diplomas. This relationship was found to be statistically significant at the 0.05 level (see Table 9) although the correlation coefficient of 0.207 indicates that the relationship is not extremely strong.

Successful performance in most of the skills taught at TAT requires a relatively high degree of mathematical ability compared with many other training programs. Trainees must compute according to formulas in order to lay out

and construct projects. Trainees must frequently inspect their work or the work of others to ensure that it is within the specified degrees of tolerance. The importance of math skills is reflected by the fact that 32 percent of the farmworkers scoring below the seventh grade achievement level on the mathematics section of the admissions test failed to complete training compared to 24 percent of those scoring at or above this level.

Table 9. Associations[a] between Pretraining Characteristics of Farmworkers and Nonfarmworkers Enrolled in TAT and Termination Status[b]

Characteristic	Farmworkers N = 106		Nonfarmworkers N = 94	
Age[c]	.152	(.06)	.018	(.43)
Race[d]	.01	(.459)	-.196	(.029)
Sex[e]	.079	(.21)	.006	(.476)
Educational status[f]	.207	(.017)	.224	(.015)

[a]Spearman RHO used as measure of association. Level of statistical significance appears in parenthesis.

[b]Noncompleter = 1, completer = 2

[c]17-19 = 1, ≥ 20 = 2

[d]White = 1, nonwhite = 2

[e]Men = 1, women = 2

[f]Nonhigh school graduate = 1, high school graduate = 2

TAT provides General Educational Development instruction for trainees who did not complete high school and lack this certificate. As was mentioned earlier, 75 percent of the farmworkers who had not completed high school also lacked the GED certificate. Instruction is designed to assist trainees

with their math and reading as well as to prepare them for the GED exam. A total of 38 farmworkers received GED instruction while at TAT. Eighteen of these individuals dropped out of the program before taking the exam. Of the 20 who remained, 12 passed the exam and received their certificate and 8 failed.

Another characteristic that appears to be associated with success in training is age. This is illustrated by Table 10. Farmworkers who are under 20 drop out more than 1.6 times as frequently as those 20 and older. This relationship is statistically significant at the 0.1 level with a correlation coefficient of 0.15, indicating a weak relationship between age and termination status. The higher dropout rate in this age group may possibly result from their relative inexperience in living on their own and being far from family and friends. Reliance on family is demonstrated by the fact that over 40 percent of the farmworker trainees listed parents as their major source of financial support prior to entry.

Table 10. Age of Farmworkers Enrolled in TAT by Termination Status
N = 106

Age	Graduates	Nongraduates
17-19	64%	36%
20-36	78%	22%

The research on employment and training programs for rural residents documents the adjustment problems experienced by rural youth, especially high school dropouts, as a result of the transition to an urban area. The North Star Research and Development Institute has conducted numerous evaluative studies of employment and training programs for youth in rural areas. These studies overwhelmingly identify social adjustment to urban life as a significant problem for rural youth.[20]

Among the TAT trainees many of the farmworkers experienced problems in adjusting to living in an urban area. In numerous conversations between farmworker trainees and the author regarding adjustment, commonly mentioned

problems were the absence of family groups and the support systems provided by family and friends, and dislike of the pace of city life. Problems in adapting to a radically different living and working environment were certainly factors affecting the decision of many trainees to withdraw voluntarily from the program. In the 15 exit interviews conducted by the author, over half the respondents cited homesickness as a major reason for leaving the program.

Farmworkers and nonfarmworkers are compared according to rates of graduation in Table 11. The distribution of demographic information by termination status indicates a number of relationships between specific trainee characteristics and graduation rate. An analysis of these relationships provides some explanations for the farmworkers' slightly lower overall completion rate.

Table 11. Pretraining Characteristics of Farmworkers and Nonfarmworkers Enrolled in TAT by Termination Status

	Farmworkers N = 106		Nonfarmworkers N = 402	
Characteristic	Graduates	Nongraduates	Graduates	Nongraduates
Age (average)	21.4	20.9	22.6	23.2
Race				
White	72%	28%	88%	12%
Nonwhite	74%	26%	63%	37%
Sex				
Men	72%	28%	85%	15%
Women	76%	24%	73%	27%
Educational status at entry*				
High school graduate	80%	20%	90%	10%
Nonhigh school graduate	67%	33%	75%	25%
Total (overall)	73%	27%	84%	16%

*Nonfarmworker data from sample of FY 77 enrollees, N = 94.

A pretraining characteristic of farmworkers shown to be related to graduation is educational status. The data in Table 11 indicate that this relationship also exists among nonfarmworkers. As shown earlier, a larger number of the farmworkers, 44 percent compared to 25 percent of the nonfarmworkers, lacked a high school diploma. To the extent that education level affected performance in training, the difference in overall completion rates between the two groups may be partially accounted for.

The data in Tables 9 and 10 suggest that the age of farmworkers and the rate of completion are related as those under 20 dropped out more frequently than those 20 and older. In contrast, no statistically significant relationship between age and termination status was found among the nonfarmworkers though the older trainees dropped out at a slightly higher rate. The difference in overall graduation rates between the two groups may be partially explained by the tendency of younger farmworkers to drop out at a higher rate.

A discriminant analysis was done on the farmworkers to determine the power of pretraining characteristics to distinguish between program completers and noncompleters. This statistical method allows for prediction of selected subgroups most likely to graduate and those most likely to drop out. Entering the same pretraining variables used in the previous discriminant analysis, the results support the relationships between failure to complete high school and failure to complete the program, and to a lesser degree between youth and not completing the program, which were suggested by cross-tabular analysis. Again, the results do not suggest that the relationships are extremely strong. The weakness of the analysis may be partially due to the sample size, which was somewhat small for the optimum utilization of this technique. A larger sample might have yielded more conclusive results.

In order to gain a better understanding of the farmworkers' experience at TAT, staff were interviewed regarding the trainees' performance in training. Staff members were asked to describe the farmworkers in terms of quality of work, rate of learning, motivation, attitude toward training, work habits, and intervening personal and adjustment problems. The observations of instructional and administrative staff indicate a number of unique characteristics of farmworkers, which were not widely found in other client groups

trained at TAT. A discussion of these differences and their possible impacts on how farmworkers related to training is presented below.

One of the most consistently mentioned perceptions of program staff concerns the familiarity of farmworkers with the training environment. Many of the farmworkers, it appears, were totally unacquainted with an industrial environment. Since many of them came from moderately isolated rural areas (over 50 percent from communities with under 2500 residents), it is quite likely that exposure to an industrial setting has not been a part of their past experience. Those coming from a rural area and having little or no work experience outside of agriculture can be expected to have some problems in adapting to an industrial setting because work habits and skill requirements dictated by this environment are very different from those needed in agricultural labor.

Supportive service counselors reported that farmworkers requested and required a greater number of supportive services than nonfarmworkers. Requests for assistance with locating housing, arranging transportation, health care, counseling for personal problems, and financial assistance were made more frequently by the farmworker participants. Other studies on training programs for farmworkers conclude that farmworkers need and benefit from a variety of supportive services.[21]

Several explanations are offered below which could account for the increased need of supportive services. For many, this was their first experience at independent living. As mentioned earlier, 40 percent listed parents as their major source of financial support. Establishing and maintaining a household far from home was a new experience for persons who have generally relied on family and friends for emotional and material support. This reliance on informal community support systems does not foster the development of particular social skills needed for independent living in an urban area. Lacking these skills, many farmworkers required a greater degree of assistance from TAT staff.

Though all trainees probably rely on family and friends for some degree of emotional and/or material support, the farmworkers were farther from home than were other trainees. While 90 percent of the nonfarmworkers listed Tennessee as their state of permanent residence, only 12 percent of the

farmworkers were originally from Tennessee. The distances made frequent visits home impossible and reduced the level of support that the family could provide.

This section has analyzed differential performance rates and discussed possible factors affecting performance. It has been demonstrated that farmworkers have had to overcome a number of barriers in order to succeed in training. Limited educational, social, and employment experiences have been assessed according to their possible impact on performance in training. In the remainder of this section, factors which appear to have had a positive effect on performance in training will be examined.

One of the most significant factors affecting success in training is individual motivation. Although reports from program staff were not unanimous, the consensus of those interviewed is that farmworkers were at least as motivated as other trainees. Several staff members have remarked that the farmworkers were more motivated and appreciative of the opportunity to learn a skill. From these reports and interviews with many participants, it can be concluded that farmworker motivation was high. In client interviews, many of the trainees commented on how they hoped training would affect their lives. Many stated that learning a skill, which would provide an adequate income, was their only hope for leaving agricultural labor. A number of trainees remarked that they had no chance of earning a decent living in their home communities. Skill training was perceived by many as their only chance to make a better life.

The contract under which the farmworkers were trained calls for the establishment of an emergency assistance fund. This fund is designed to meet trainees' financial emergencies that would result in undue hardships or necessitate withdrawal from the program. The fund was used to pay medical bills not covered by insurance, to provide transportation to funerals, and for other emergencies. The fund enabled two trainees to return and complete training after taking a leave of absence for medical problems.

Another factor that positively affected performance in training was the involvement of the migrant and seasonal farmworker agencies which referred the trainees. The farmworker agencies maintained contact with their clients throughout the training cycle. Staff from these agencies made occasional visits to the training site to meet with trainees and to assist new trainees

with relocation. The farmworker agencies provided a relocation allowance of $250 to each trainee. This was used to cover relocation costs such as obtaining and establishing a household.

The support provided to clients by the farmworker agencies has been noted by TAT staff. Agency personnel have frequently offered their support and cooperation in addressing personal problems that were interfering with an individual's participation in training. Agency counselors have assisted the TAT staff in solving a number of financial, family, and motivational difficulties experienced by trainees. Outreach workers have frequently maintained contact with the farmworkers' family during training, encouraging the parents to actively support their son's or daughter's participation in training.

CONCLUSIONS AND RECOMMENDATIONS

Limited employment opportunities, a low standard of living, and barriers t mployment due to rural isolation are problems faced by many farmworkers today. Recent federal manpower policy has addressed some of the problems of agricultural workers and their families by designating farmworkers as a target group and mandating employment and training programs to meet their particular needs. Employment and related services are designed to provide eligible participants who wish to leave farm work with alternatives.

The Department of Labor and Department of Energy have cosponsored five such programs which have trained migrant and seasonal farmworkers for skilled and technician-level occupations in energy-related industries. This study has shown that the first of these demonstration programs has been successful in training and placing farmworkers in energy-related jobs. This conclusion is based on the posttraining gains in labor force status and wage rates, and program completion rates experienced by participants. Apparent key factors contributing to the success of the program include the farmworkers' desire to leave agricultural labor and willingness to relocate to accept employment, the existing network of employers developed by the program, and the program's ability to provide needed supportive services. This assessment is supported by Berry's finding that the impact of occupational training programs for farmworkers is increased when such programs also provide placement and supportive services.[22]

The farmworkers experienced a slightly lower posttraining employment rate than the nonfarmworkers (71 percent compared to 83 percent). A possible factor related to the differential placement rates is the reluctance of some farmworkers to relocate and the geographic location of known job opportunities. In order to maximize the job placement rate for future farmworker trainees, the TAT program should expand its existing network of employers in the farmworkers' home states. This would provide additional employment opportunities for individuals unwilling or unable to move far from their home communities.

Other implications of the findings for program decisions center on the performance of farmworkers during training. Program completion rates of

selected subgroups show that younger farmworkers and those who had not completed high school are less likely to complete training. The younger participants, many of whom experience adjustment problems because they have never lived away from home, could receive special counseling and seminars designed to develop independent living skills. Previous studies of rural employment and training programs have demonstrated the need for this service especially among younger participants. Those without high school diplomas could receive additional tutoring to raise their academic skill levels. Instruction could be given before and during skill training. Since the relationship between youth and education, and program completion status is not extremely strong, additional research would be helpful.

The findings of this study support other research demonstrating that skill training, in contrast to income maintenance strategies, can provide farmworkers with a more permanent solution to under- and unemployment. The number of farmworkers participating in skill training programs is quite small, however, even though the universe of eligible farmworkers is large.[23] This is due to a number of factors such as inadequate funding, higher cost (per participant) of training relative to income maintenance programs, and the absence of skill training centers in rural areas. While cost-benefit studies are needed to determine the value of different employment and training strategies designed to alleviate the labor market problems faced by the rural disadvantaged, the findings of this study suggest that the use of skill training in the service mix should be increased.

NOTES

1. U.S. Department of Labor, Manpower Administration, *Review of the Rural Manpower Service* (Washington, D.C.: 1972), pp. 7-8; and Ray Marshall, *Rural Workers in Rural Labor Markets* (Salt Lake City, Utah: Olympus Publications, 1974), pp. 89-90.

2. William Mirengoff and Lester Rindler, *CETA: Manpower Programs Under Local Control* (Washington, D.C.: National Academy of Sciences, 1978), pp. 1 and 220; and Garth L. Mangum, *MDTA Foundation of Federal Manpower Policy* (Baltimore: Johns Hopkins Press, 1968), p. 78.

3. Charles R. Perry et al., *The Impact of Government Manpower Programs* (Philadelphia: Industrial Research Unit, The Wharton School, University of Pennsylvania, 1975), pp. 76-77.

4. Ibid., pp. 157-158 and 435-442.

5. Mirengoff and Rindler, op. cit., p. 232.

6. Ibid., p. 252.

7. Ibid., p. 3.

8. National Governors' Association, *CETA and Rural Areas* (Washington, D.C.: 1979), p. 26.

9. Dale W. Berry, *Longitudinal Study of the Effects of Selected Employment and Training Services on Migrant and Other Seasonal Farmworkers* (Washington, D.C.: Kirschner Associates, Inc., 1979), p. 96.

10. Ibid., pp. 97-98.

11. U.S. Department of Labor, Employment and Training Administration, *Migrant and Seasonal Farmworker Programs* (Washington, D.C.: 1977), p. 4.

12. Ibid., p. 2.

13. U.S. Department of Labor, Employment and Training Administration, *Rural Oriented Research and Development Projects: A Review and Synthesis*, R & D Monograph 50 (Washington, D.C.: 1977), p. 7.

14. The Office of Farmworker Programs extended this contract through September 26, 1980, awarding $673,519 to provide training and related services to an additional 90 farmworkers.

15. Oak Ridge Associated Universities, *Training and Technology Statistical Report: October 1976-September 1977* (Oak Ridge, Tennessee: 1978).

16. Perry et al., op. cit., pp. 176-179.

17. Tennessee Department of Employment Security, Manpower Division, *Tennessee Annual Manpower Report to the Governor, Fiscal Year 1978* (Nashville: 1979), p. 33.

18. Oak Ridge Associated Universities, op. cit.

19. The Adult Basic Learning Exam (ABLE) was administered to all applicants in 1977 and 1978.

20. U.S. Department of Labor, Employment and Training Administration, *Rural Oriented Research and Development Projects: A Review and Synthesis*, p. 7.

21. Berry, op. cit., pp. 97-98; and Urban Research Group, *Evaluation of the National Migrant Worker Program*, vol. 1 (Austin, Texas: 1974), p. 190.

22. Berry, op. cit., p. 98.

23. InterAmerica Research Associates, *An Assessment of the Migrant and Seasonal Farmworker Situation in the United States*, vol. 2: *Findings* (Washington, D.C.: 1976), pp. 70-74.